Appendix F

DTSC Comments On the
Focused Feasibility Study for Hamilton Army Airfield Inboard Sites (February 26, 2001)

No.	Comments	Responses
DTSC Comments		
	Introduction Page 2, Last Paragraph: Commentor states, "The FFS relies on elements of the proposed conversion of Hamilton into a wetland to complete the remediation by mitigating the risk to future wetland receptors from residual contamination."	The Hamilton Wetland Restoration Plan (Plan) is not one of the CERCLA based documents and is not relied upon by the Army in making any decisions regarding the remedial actions at the site. The Army does not rely on the conversion of the wetland for any remediation. The site does not currently pose a risk to receptors. The potential risks that could exist through completion of the wetland restoration will also be mitigated by the wetland and the performance criteria for the wetland established by Army decision documents. The Army's decision is to remove the pathway of exposure to future receptors thereby mitigating potential risk during the development and maturation of the wetland. Performance criteria for the final design are set forth by the Army as institutional controls which will ensure protection of human health and the environment.
	General Issues	
A	Hamilton Wetlands VS BRAC FS The 1998 HWRP indicates the Hamilton property will be provided to the SCC in a condition that is suitable for implementation of the wetland restoration. The HWRP also indicates the final cleanup action has not been determined, but that contaminants may be left on site. Consistent with the HWRP, alternatives are being considered that include a combination of on-site consolidation of contaminated soils, and in-situ management of contaminated soils underneath three feet of stable cover material. Based on recent discussions, a	The FFS has been revised to more clearly describe the performance criteria that have been established to ensure that the wetland design will provide, monitor, and protect three feet of stable cover for each area requiring remedial action. The specific relationship between the wetland design and the placement, monitoring, and protection of cover can only be adequately understood and planned for following completion of the final wetland design. The Alternative proposed by the Army is performance criteria for the final wetland design. The remedial action

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	minimum of three feet of stable, clean soil would be placed over contaminated areas prior to breaching of the flood control levee. We understand remediation would be implemented as follows: 1. Modeling of the wetland design would be relied on to establish the areas where erosion may occur, and the maximum depth of erosion into the native soils. Preliminary results are contained in Attachment E [Figure E, Predicted Long-Term Potential Scour (and depth of Cover) into (or above) Existing Ground Surface Elevation, Complete Fill Alternative]. The wetland design and associated modeling would need to be finalized prior to preparation of the Implementation Plan. 2. Soils potentially subject to erosion, as described in Item 1 above, would be characterized prior to excavation. 1. If concentrations are found to be hazardous, excavated soils would be disposed off-site in a Class I landfill. 2. If concentrations are found to be non-hazardous, excavated soils would be consolidated on-site in an approved, stable location (i.e., a non-tidal area above the projected groundwater table). 3. Excavation of soils potentially subject to erosion, as described in Item 1 above, would occur to remove contaminated soils so that a minimum of three feet of stable cover could be placed, based on the analysis in Item 1 above. 4. Confirmation sampling would be conducted following excavation of soils potentially subject to erosion, as described in Item 1 above, to determine if all contaminated soils had been removed, or if cover is still needed. 5. A minimum of three feet of stable cover would be placed	proposed is the implementation of the institutional control. The institutional controls establish performance criteria that require three feet of stable cover on areas where residual contamination is present above comparator values or the removal of residual contamination above comparator values. If the performance criteria of three feet of stable cover is not practical or can't be met, then confirmation sampling is not required. However, if Alternatives 3 or 4 (excavation with offsite or onsite disposal, respectively) is required, then confirmation sampling is required. The FFS has been revised to indicate that confirmation sampling will be conducted either prior to excavation or post excavation to determine that RAOs can be met for those sites where excavation is the preferred alternative. Since performance controls will dictate limitations placed on the design, completion of the design is not necessary for the FFS. The design will not be incorporated into the FFS. The FFS has been revised to better describe the monitoring requirements and objectives under Alternative 2.

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	over the identified contaminated areas. This cover would need to be maintained over all contaminated areas throughout the life of the wetlands	
B	Area-Wide Pesticides Analytical data provided by the Army suggests there is widespread residual soil contamination of DDT (and its derivatives) on the BRAC parcel (both inboard and outboard areas). This contamination extends over most areas of Hamilton at levels 10 to 1000 times greater than anticipated cleanup levels of 6-7 ppb. In the outboard area, contamination above 1 ppm (approximately three orders of magnitude above cleanup levels) has been found over a relatively wide area, at depths of at least 30 inches. The analytical data suggests contamination may extend into the soils of San Pablo Bay. This contamination is located in the area where the levee is to be breached to allow bay waters to enter the wetlands. Soils to a depth of 10 feet below sea level can be expected to be washed into the wetlands following breaching of the levee. The Army is currently preparing a work plan for collection of samples at 12 locations at three depths. The sampling plan is scheduled for submission by June 18, 2001, with sample collection and results to be available before October 1, 2001. The HWRP (Vol. III, Page 2-9) indicates remediation of the BRAC parcel will include the elimination or reduction of potential impacts associated with pesticides found on-site. Although not addressed in either the FFS or the risk assessment, all parties agree the DDT contamination is a potential threat to the health of the wetlands.	The site-wide DDT concentrations are the result of the legal application of pesticides. The Army has determined that the DDT concentrations do not constitute a CERCLA release and are therefore not examined in the CERCLA process. DTSC opinion is that the residual DDT should be addressed under CERCLA. The Army has agreed to include a discussion of them in the ROD/RAP. The Army does agree that residual DDT is a potential exposure point risk to some future wetland receptors. To date there are no clean up levels developed or anticipated for HAAF. Comparator values are established in the FFS for screening purposes. These values are used to determine when further evaluation in the FFS was required. The FFS established that when residual chemical of concern (COC) concentrations are below their comparator values the site would not be a concern and conversely if the 95 UCL concentrations (or maximum in some cases) were above the comparator values then the site required further evaluation in the FFS. The remedial actions evaluated will mitigate potential risk by eliminating potential pathways (exposure) to receptors. The Army has no data suggesting that Army activities have generated contamination in soils that extend into San Pablo Bay. The Army's current proposals of removal of residual contamination or institutional controls will ensure that residual contamination above comparator values will not mobilize into the environment.

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		As discussed with the RART representatives, the Army will prepare separate FFS and RAPs for the outboard sites. The upcoming outboard site activities will include collecting additional samples to characterize the proposed channel cut area. The work plan for this effort is being prepared and will be provided for regulatory review as soon as possible. However, the work plan was not scheduled for distribution on June 18 as stated.
C	Hydrologic Modeling and Cover Requirements Several wetland conceptual design presentations have been made over the last few months to aid in the integration of the wetland design with measures for managing contaminated soils in-place. The hydrologic modeling presented by the SF-USACE on April 30, 2001, indicates the following: 6. Scour of the current native soils in primary and secondary channels is likely, and secondary channels where present are likely to meander throughout the site. This suggests wastes left in-place in areas subject to tidal action would be allowed to erode and be redeposited on-site or carried into San Pablo Bay. 7. The SF-USACE has indicated the area north of the runway is likely to erode. Additional areas may also erode. 8. Internal levees proposed for use in covering contaminated sites and for control of channel formation and direction are anticipated to erode over time. Their suitability for stabilizing contaminated soils is unclear. At least three feet of stable cover should be provided, or contaminated soils removed from the area completely or to a depth at which three feet of stable cover can be maintained. 9. Preliminary modeling (See Attachment E) indicates "erosion" of non-erodible materials (e.g., concrete runway) is	The information that has been presented indicated that maximum scour potential was likely to impact current native soil. Using conservative assumptions, the modeling predicted the potential impact to the current soil would only occur in the primary and secondary channels. The information presented also indicated that once established the primary and secondary channels will be very stable and will not meander throughout the site. For these reasons, the Army believes the performance criteria solution will be protective of human health and the environment. The performance criteria will not allow for erosion of existing sites where residual contamination of COCs is present above comparator values. The modeling shows that areas where erosion is likely to occur are in the primary and secondary channels. The modeling also shows that only minimal erosion of internal berms is expected. Erosion would take place primarily at the end of the berms where higher water velocities would be expected. Sites that will be addressed by institutional controls do not require the final design to be completed prior to completing the FFS. The performance criteria specified in the

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	likely to occur, suggesting the model does not properly deal with the non-erodibility of hard surfaces and that, in the real environment, adjacent erodible surfaces may actually erode more than indicated. Additional modeling is necessary to further clarify this issue. The SF-USACE and SCC have also stated there is no guarantee regarding the quantity of dredge spoil material that would be provided. Contingency plans should be made to provide three feet of stable cover material from alternate sources, or for excavation and either off-site disposal or placement of contaminated soils in areas not influenced by tidal action.	institutional control will dictate that the final design meet the remedial action objectives by ensuring that three feet of stable cover is present and monitored to protect human health and the environment. The final wetland design will address any issues regarding the availability of dredge material. Therefore, no contingency plan is addressed in the FFS.
D	Post Remediation Monitoring and Maintenance Additional monitoring and maintenance activities beyond those identified in the HWRP would be needed in the event residual contamination is managed on-site. These need to be identified and discussed in the FFS, including: 10. Measurements to determine subtle changes in topography, including: 1. Pin studies, consisting of placing stakes in the ground in a grid pattern at a standard height above pre-breach topography; 2. Periodic visual observation of the site (with photographs from standard locations) to aid in determining the rate of sedimentation or erosion; and 3. Aerial topographic surveys conducted monthly during the first year, quarterly for the next 2 years, and possibly annually thereafter. 11. Monitoring of sediment and water quality at several locations within the wetlands and the breach area. Sampling should be conducted monthly during the first year, and	The Army agrees that long term monitoring is a key to tracking both the effectiveness of the alternatives selected and the physical development of the wetland. The Army believes that it may not be necessary to add additional monitoring requirements beyond those already planned for the wetland restoration project. However, additional goals may need to be added to the program to meet objectives that are beyond those of the wetland restoration monitoring project. To be effective, the monitoring plan must consider the specifics of the final design. The FFS has been revised to provide additional information on the types of activities such as chemical, physical and biological monitoring that should be considered in the monitoring plan. The FFS also includes examples of the types of monitoring that should be considered. The monitoring plan will be prepared by the USACE, San Francisco District and SCC in consultation with the Army. Details of the plan will be dependent upon the final wetland design. Through a formal process, the regulatory agencies would ensure that the final wetland design and the grading plans for the final wetland design

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	quarterly for the next 4 years. Sampling should be conducted more often if requested by the RART. 12. Monitoring of flora and fauna for contaminant uptake. This should include placement of a California Department of Fish and Game Mussel Watch Station near the breach location, and collection of additional samples for analysis. 13. Computer modeling updated quarterly to predict changes in topography and potential for scour of the three feet of cover and/or the underlying contaminants. 14. For future reference and as part of the institutional controls, a map showing the contaminated areas with three feet or more of stable cover material, including the concentrations and elevation of the soils being covered. 15. Contingency Plans ("Adaptive Management") in the event the remedy fails. Development of contingency plans is hampered by the need to allow the wetlands to develop naturally. The SCC, SF-USACE, and trustee agencies have indicated the wetlands is expected to develop with little or no disturbance (e.g., dredging or other earth moving activities) once the levee has been breached. Selection of the remedial action should limit, to the extent feasible, the quantity of contaminated materials moved to on-site stabilization areas that are subject to tidal action.	meet the specified performance criteria and are protective of the future wetland receptors. The FFS and ROD/RAP will reference the legislation that requires the wetland design to include an adaptive management plan in the wetland restoration project.
E	Environmental Analysis As discussed above, the 1998 HWRP anticipated residual contamination may be managed on-site as part of the wetland design, construction and operation. The HWRP did not provide any details on how that on-site management would be incorporated into the design, as that information was not available at that time. DTSC is considering preparation of a supplement to the HWRP which would integrate the wetlands	Under CERCLA, there is no NEPA document requirement for decision documents regarding remedial actions. An EIR/EIS does exist for the wetland restoration project. The proposed actions in the FFS do provide a description of the project and proposed actions to be conducted. The HWRP is not a part of the CERCLA process and is not addressed in the ROD/RAP or FFS. Comments on the HWRP

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	project design with the contaminant management needs. The Army should provide a project description which integrates the wetlands project design with the contaminant management needs. DTSC will determine the appropriate administrative approach for compliance with the California Environmental Quality Act based in large part on the project description. This is critical to moving the project forward. In addition, as part of the decision process, an EIS or other equivalent NEPA document is necessary to obtain approval for the federal portion of the project.	are outside the scope of this document.
F	Preliminary Assessment On May 31, 2001, Congresswoman Lynn Woolsey visited HAAF, and presentations were made by representatives of the Army, Navy, and the USACE. The Army provided an update on its efforts to address the potential landfill identified in a May 11, 2001 letter from Mr. Robert T. Foley (Attachment F). Mr. Foley's letter indicates he conducted environmental compliance inspections on behalf of the Army throughout northern California and Nevada in the late 1980s, including two at Hamilton. These reports or information contained in them has only recently been included in work at Hamilton, as indicated in the enclosed Army briefing document (Attachment G). The Army is currently reviewing historic aerial photographs, conducting an archive search of all Army reports on Hamilton, and interviewing former Hamilton employees. The summary presented in Attachment G suggests the Army's review of aerial photographs has found at least a portion of the area identified as a potential landfill by Mr. Foley may have once been excavated. Review of aerial photographs and historical records, and interviews with former employees are essential elements of a preliminary assessment, and should be conducted for the	Mr. Foley's memo of May 11, 2001 states that he was "conducting logistics evaluation inspections" not environmental compliance inspections. The review of aerial photographs indicated the site features have not changed since 1946. As shown in the referenced Army briefing document (Attachment G), the Army review of aerial photographs did not indicate that a portion of the potential landfill had been excavated but that "...at least a portion of the area in question has <u>not</u> been excavated." The Army is investigating Mr. Foleys accusations, however the Army is not preparing a PA for the entire BRAC property. Information gathered in the Army's efforts to evaluate this site will be documented in a report expected to be available for distribution in September 2001. The Army has agreed to forward all radiological reports to DHS for review. The HWRP indicates that if certain storm events (i.e. a 100 year flood) were to occur, it is possible that the PDD could overflow into the BMK-V parcel. There is no information suggesting that the PDD has ever overflowed into the BMK-V parcel. Under existing conditions, storm water from the

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	entire Hamilton installation. Any additional release areas or relevant site features identified through this process should be documented in a draft preliminary assessment, and referenced in the FFS. Stereoscopic pairs of all Hamilton aerial photographs, notes from aerial photograph review, and copies of the interview notes should be provided to the RART and placed in a permanent information repository. Radiological issues also need to be reevaluated. In a memorandum dated January 18, 1994, (Attachment H) the California State Department of Health Services (DHS) commented on the Draft Community Environmental Response Facilitation Act (CERFA) Report, November 1, 1993. The DHS expressed concerns regarding the need to identify potential radiological handling activities, and identify potential release areas. The revised CERFA Report (April 1994) indicates that, with the exception of the low-level radiological waste cylinders removed from the site in 1988, there were no records available regarding the use, storage, or disposal of radiological materials at Hamilton. In contrast, the Foley letter indicates boxes of radium dials and compasses were found stored near Building 86, and reportedly disposed at the North Antenna Field. It is recommended the PA currently being conducted address the issues raised in the DHS memorandum and Mr. Foley's letter. The HWRP indicates the Perimeter Drainage Ditch (PDD) overflows into the adjacent Bell Marin Keys Unit V (BMK-V) parcel during certain storm events. (Volume I, Page 17 and Figure 2-6). Given the contamination in the PDD, this could certainly impact BMK-V. Review of the May 5, 2000, Phase I Preliminary Site Assessment for California Quartet Property, Bell Marin Keys Unit V, does not contain any information to suggest the BMK-V ditch and pump station area were sampled. Impacts to the BMK-V parcel should be addressed in the FFS. It is recommended the sampling being conducted to	BMK-V parcel flows onto the BRAC property or is pumped via its own pump station. The ditch was sampled by the SCC.

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	assess contamination of the outboard area in the vicinity of the breach be expanded to include characterization of the BMK-V ditch and pump station area.	
	Specific Comments	
1	Table ES-1, *Preferred Remedial Alternative Summary*, identifies the sites considered in the FFS, and the Army's recommended remedial alternative for each site. None of the following areas were evaluated in the Human Health and Ecological Risk Assessment (HHERA) or the FFS. These release areas appear to be at risk from erosion or might otherwise adversely impact the wetlands. Incorporation of this information into the site conceptual model and evaluation of impacts from these areas is needed. 1. Areas with known contamination omitted from the FFS include: 1. Perimeter Drainage Ditch (PDD), Lined Portion; 2. GSA Phase 1 remediation soils that are stored in piles on the runway; and 3. The regional pesticide and polynuclear aromatic hydrocarbon (PNA) contamination identified in DTSC's February 15, 2001 letter, Hamilton BRAC; Retraction of CERFA Concurrence Due to Pesticide and Polynuclear Armotic Hydrocabon Contamination 2. Additional potential release areas include: 1. The potential landfill and waste storage are as (including radionuclides) identified in the May 11, 2001 letter from Mr. Robert T. Foley; 2. The PDD dredge spoil pile between Revetments 7 and 10 that disappeared after being identified in the April	**PDD Lined Portion –** This area was remediated in 1998 by removal of all sediments and materials. Visual inspection confirmed that all materials had been removed. In 1999 samples collected from cracks in the lining detected pesticide concentrations that were in the range of site-wide detections. The Army has agreed to address the lined portion of the PDD in the FFS and ROD/RAP. The human heath and ecological risk assessment evaluated the unlined portion of the PDD. Since that time, the lined portion of the PDD was combined with the unlined portion for evaluation in the FFS and ROD/RAP. Because the comparator values developed in the FFS for the PDD are not risk driven, the Army believes that the comparator values established in the FFS are appropriate for the entire PDD (lined and unlined portions). **GSA Phase I Remediation Soil Piles**. The soil piles on the runway contain soil that was removed from petroleum sites on BRAC and GSA property. Decision documents were prepared for these petroleum sites. The petroleum contaminated soil is exempt from CERCLA and is therefore not included in the FFS. The Army has agreed to work with the RWQCB on determining the final disposition of the soil piles. **Regional PNAs and DDT.** As stated in a letter to Tony Landis, Cal EPA DTSC, dated March 13, 2001, the Army asserts that the site-wide DDT concentrations are the result of the legal application of pesticides. As stated in this letter, no

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	1994 CERFA report (disposition of these soils needs to be determined); 3. Subsurface contamination associated with Storm Drains within the revetment areas: 4. The Radiologic Cyclinders removed near the north end of the runway, adjacento to Ignacio Reservoir; 5. The runway as potential source of PNAs; 6. Ordance and Explosives; 7. The Precision Radar facility; 8. Building 48 and nearby "Taxiway;" 9. Building 16; 10. Building 46; and 11. Revetment 29 (current site of "Nina's Lake").	pesticide mixing or storage areas have been identified on the BRAC property. The PNA issue for soil near the runway is the result of the weathering of the tar-like sealer on runway surfaces. The Army has determined that the legal application of pesticides and weathering of the runway surface do not constitute CERCLA releases. Therefore, they are not included in the FFS. DTSC's opinion is that these should be included. The Army has agreed to include them in the ROD/RAP. **Landfill and Waste Storage**. Based on the Army's review of current sampling data directly from these areas, there is no eminent risk to human health or the environment from these alleged areas. Once the interviews with former employees and the archives records search report are complete, the Army, as the lead agency, will determine if physical sampling or additional action is required at this site. If additional action is required, the CERCLA process will be followed. **PDD Spoils Pile.** The Army believes that a spoils pile was never present between Revetments 7 and 10. There appears to be an error on the CERFA map. Based on interviews with persons familiar with the site, a review of aerial photographs and the history of the area, there is no indication a pile was located in this area. The Army has agreed to provide documentation to the RART to support this determination. **Storm Drains.** A camera survey of the storm drains in conjunction with the Aircraft Maintenance and Storage Area was conducted. All sediment was cleaned from storm drains in the Aircraft Maintenance and Storage Area and revetment area. The data for this area was reviewed by the RART in their review of the Comprehensive RI. After reviewing this data, the RART did not indicate that contamination

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		associated with this area required any further evaluation. **Radiologic Cylinders.** A formal report was prepared regarding the removal actions that were conducted to remove cylinders containing radiological substances. The Army has agreed to provide all information related to the removal to DHS. Instrumentation used at the time of the removal action did not detect releases. All items of concern were contained in steel cylinders. Radiological sites with no issues of concern are not considered sites for inclusion in the FFS. **Runway as a Potential Source of PNAs.** The Army does not consider grouting materials on the runway containing PNAs to be a release to the environment. Therefore, this area is not addressed in the FFS. This issue will be addressed by the wetland restoration project team. **Ordnance and Explosives.** Based on existing records and available information there is no evidence of either unexploded ordnance or explosives on BRAC property at HAAF. The newspaper article cited in the CERFA report was unsubstantiated. **Radar Facility.** The precision radar facility was located near Building 20. No environmental concerns are associated with this facility. The soil in this area was removed and used for construction of the wetland creation project at the northern end of the runway. **Building 16.** This building was a shack located on top of Revetment 22. No environmental concerns were identified in association with the building. Soil beneath and adjacent to Revetment 22 has been sampled and the revetment is evaluated in the FFS. **Buildings 46 and 48**. These sheds had no environmental

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		concerns. **Revetment 29.** This area was characterized to determine if it was suitable material for constructing the cap on Landfill 26. The material was extensively tested and determined to be suitable for cap material. The entire revetment area was excavated an used as borrow material for the landfill.
2	The Perimeter Drainage Ditch, Lined Portion, underwent remediation to remove contaminated sediments. As discussed at a previous RART meeting, and as presented in the *Remedial Design Investigation, Final Data Report*, February 2000, sample numbers 28 and 29 were subsequently collected from the cracks in the lined portion of the PDD between the pump stations. These samples contained DDTs (and its derivatives) at concentrations of 0.70 and 0.35 ppm, respectively. Most of the text in FFS Section 1.7.9 describes the lined portion of the drainage ditch, but the FFS does not actually consider the lined portion of the PDD to be a site. The discussion of the PDD should be revised to include the results of sampling of the site, and discussion of remedial alternatives for the site. In particular, detailed information on the following should be provided: the date the PDD was lined and for what areas; changes to the PDD associated with the construction of the Landfill 26 cap; history of PDD dredging and disposition of the dredge spoils; hydraulic connections to adjacent parcels and groundwater (e.g., the groundwater dewatering system referenced in the HWRP); information associated with the area of the PDD to be breached, including preferential erosion around the concrete lining of the PDD; and results of sample analyses.	**PDD Lined Portion –** This area was remediated in 1998 by removal of all sediments and materials. Visual inspection confirmed that all materials had been removed. In 1999 samples collected from cracks in the lining detected concentrations of pesticides within the range of concentrations observed for the site wide pesticides. Therefore, the lined portion of the PDD was not considered a site for inclusion in the FFS. The FFS has been revised to include the lined portion of the PDD. A portion of the PDD lined ditch is expected to be removed as part of the wetland restoration project to make way for a channel cut. The ROD/RAP will address the lined portion of the PDD. The BEC has reviewed completion reports for the PDD in the archives in Washington D.C. The report indicates the PDD lining was complete in November 1940. The Army is currently reviewing documents to determine whether changes to the portion of the lined PDD on BRAC property occurred as result of activity near the Landfill 26. There is no documentation that the dredge piles were used for any purpose at HAAF. Based on Army experience and available data, the hydraulic conductivity measurements show negligible groundwater movement in the areas of Bay mud. There are also no known

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		conduits that would suggest a hydraulic connection to adjacent parcels.
3	GSA Phase 1 Soils: Soils from remediation of the GSA Phase 1 parcel are being stored on the runway. Authorization for use of these materials in the wetlands has not been provided, and would need to be included in the RAP with supporting documentation in the FFS. Historically, the PDD, which has been shown to be contaminated with metals, pesticides, and other contaminants, continued into the GSA Phase 1 parcel between Caliente Real and Casa Avenue, and ended at Building 145. Please revise the FFS to include information on the nature of the remediation of the GSA Phase 1 parcel, the results of analyses of the wastes on the runway, and comparison of the analyses performed to the contaminants known to be present in the PDD.	**GSA Phase I Remediation Soil Piles**. See previous responses. The soil on the runway originated from excavation of fuel impacted soils from GSA and BRAC out parcels. These soils are not related to the PDD in any way. The Army has also agreed to work with the RWQCB to determine the final disposition of the soil piles.
4	The Army has insisted on several occasions, and most recently at the June 5, 2001 meeting, that the pesticide contamination is associated with the legal application of pesticides and therefore not subject to CERCLA. DTSC has reviewed this matter, and can find no supporting documentation from the Army on the assertion that it was legally applied. It may, however, be associated with disposal of contaminated PDD dredge spoils. Therefore, DTSC requests the Army amend the FFS to address the pesticide contamination, or provide appropriate supporting documentation. Consistent with other sites proposed for excavation, pre-design borings and confirmation sampling is needed to establish the depth of excavation, and for determining whether soils could be managed on-site or must be disposed off-site in a Class I landfill. This information is also needed to identify areas requiring three feet of stable cover.	The DTSC retraction of CERFA is a policy issue that needs to be addressed outside of the FFS and ROD/RAP process. As stated in the Army's letter dated March 13, 2001 the Army asserts that the site wide pesticide contamination is the result of historic legal application of pesticides to control mosquitoes. DDT was widely used as a legal remedy for mosquito control. Analytical results for the BRAC property do not identify mixing, storage or hot spot areas that could be considered CERCLA releases. The Army has found no documentation to support the speculation that PDD dredge spoils were used on site for any purpose.
	Similarly, the cause of the PNA contamination adjacent to the	Language in the FFS has been revised to indicate this area

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	runway has not been demonstrated. Draft FFS Section B.3.1.1, *Base Realignment and Closure Property Sitewide Ambient Data*, provides a discussion of the sampling conducted to determine the ambient levels of various pollutants. One of the samples, HB-99-SO-1, was collected in a "high impact" area adjacent to the runway, and was found to have high PNA concentrations. As outlined on page B-16 of the Draft FFS, contaminant concentrations in High Impact Areas were expected to exceed ambient concentrations, and would be considered for further remediation. Remedial alternatives for this contamination were not evaluated in either the draft FFS or the FFS. The FFS should be amended to include remediation alternatives for the PNA contamination, including the use of three feet of stable cover. It should also be noted the HWRP (Volume II, Page 3-8) indicates the PNAs associated with pavement will be addressed through the State oversight process. The HWRP also indicates those areas where asphalt could interfere with channel development and be released in the environment would be removed. Consistent with other sites proposed for excavation, pre-design borings and confirmation sampling is needed to establish the depth of excavation, and for determining whether soils could be managed on-site or must be disposed off-site in a Class I landfill. This information is also needed to identify areas requiring three feet of stable cover.	was not identified as a high impact area. The designation potential high, medium, and low impact areas was developed as part of the original sampling plan for pesticides. The designations were used to anticipate probable use areas and ensure that the sampling adequately addressed all types of areas. This area is not included in the FFS because the Army does not consider it to be a CERCLA release. The Army has agreed to discuss this area in the ROD/RAP. The wetland restoration team will address contamination associated with pavement. Portion of comment related to HWRP is outside the scope of the FFS and the CERCLA process.
5	Revetment 29, the current site of "Nina's Lake," was not addressed in the FFS. DTSC recognizes the revetment has been removed, and surrounding soils used to construct the wetland mitigation project at the north end of the runway and for the Landfill 26 cap. Even so, it will be necessary to discuss the analytical results associated with this revetment in the FFS so that the site can be closed out in the final RAP.	Revetment 29 was excavated and used for borrow material to construct the cap on Landfill 26. The borrow material was tested for chemical contamination prior to use at the landfill. The Environmental Baseline Survey for the Main BRAC property will provide documentation indicating this area is not a site.

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6	RADIOLOGICAL ISSUES: At least one site on the Hamilton BRAC property (i.e., pipes located near Ignacio Reservoir) underwent remediation for radiological contamination. The nature of the remediation, including the radiological levels left behind, needs to be included in the revised FFS. DHS should be contacted to determine whether the cleanup meets DHS' standards, so that the site can be closed out in the final RAP.	The site was remediated to remove the cylinders containing radiological substances. No releases of radiation were detected at the site. A formal report was prepared regarding the actions that were conducted to remove cylinders containing radiological substances. The Army has agreed to provide all information related to the removal to DHS. Instrumentation used at the time of the removal action did not detect releases or the presence of any radiological substances. All items of concern were contained in steel cylinders. Radiological sites with no issues of concern are not considered sites for inclusion in the FFS.
7	ORDNANCE ISSUES: As outlined in DTSC's March 2, 2000 Letter, *Hamilton Army Airfield, Ordnance Archive Search Report* (OASR), there is information suggesting ordnance may have been buried at Hamilton Army Airfield in the outboard area near the proposed levee breach. An OASR is being prepared by the Sacramento office of the USACE for the entire Hamilton Facility. DTSC understands preliminary information from the OASR should have been available in early June 2001. Information regarding ordnance and explosive wastes should be included in the revised FFS.	Based on existing records and available information, there is no evidence of either unexploded ordnance or explosives on the BRAC property at HAAF. As a result of DTSC's March 2, 2000 letter to the Formerly Used Defense Sites (FUDS) project manager, USACE, Sacramento District is preparing an OSAR for the FUDS property. This document will not pertain to any BRAC property. In response to the May 11, 2001 letter from Mr. Foley, the Army is conducting an archives search report (ASR) for the Army BRAC property. The Army will determine if any issues are identified in the ASR that need to be addressed through the CERCLA process. The ASR is expected to be released to the regulators in September 2001.
8	Section 1.1, *Purpose and Scope,* indicates the scope of the FFS is limited to sites inboard of the flood control levee. During the March 20, 2001 meeting of the Army and DTSC, it was agreed the entire BRAC parcel would be considered as a single entity, and remediated accordingly. Please develop a feasibility study to address contamination of the outboard area, including pesticide contamination, and a schedule. Please also develop a	The Army has indicated on several occasions that the outboard sites will be evaluated in an FFS and ROD/RAP that are separate from the Inboard Area sites. The agreement to treat the Main BRAC property as a single area pertains to transfer of the property. In accordance with agreements with DTSC, the Army is

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	RAP for the outboard area. This information is needed in order to support a finding that all necessary response actions will be taken, and to identify the schedules for investigation and completion of all necessary response actions.	proceeding with early transfer the Main BRAC 644-acre parcel in one effort. In accordance with early transfer procedures, the Army is not required to clean up or make all decisions prior to transfer.
9	Section 1.1, *Purpose and Scope,* summarizes the methodology used to make recommendations regarding further action for the sites listed in the FFS. The FFS relies in large part on the HHERA. On February 16, 2001, the Army provided updated portions of the HHERA, including Appendices A, E, F, and H, and Sections 3 and 7 tables. As indicated in the trustee and regulatory agencies' comments on the HHERA (see the enclosures accompanying DTSC's July 19, 2000 letter), there were a number of concerns regarding the HHERA. Most notable is the absence of risk analyses for several identified sites, including base-wide pesticide contamination, the PDD Dredge Spoil pile that was located between Revetments 7 and 10, and contamination associated with the lined portion of the PDD (See Specific Comment 1 for additional areas of concern). The revised HHERA does not adequately address those concerns. Rather than direct the Army to revise the HHERA, the trustee and regulatory agencies have been working with the Army and others to identify appropriate cleanup levels for various pollutants and, based on that analysis, determine the appropriate mitigation actions (e.g., stabilization with three feet of stable cover). There are also significant issues regarding site characterization, as discussed elsewhere in these comments. The FFS should be revised to indicate the HHERA can not be relied on to identify those sites that require no further actions, those sites that require remedies, and the determination of proper remedies for the subject sites.	The FFS relies primarily on the comparator values negotiated with the RART, and not the HHERA. Comparator values represent screening levels in the FFS (agreed to by the RART) used to determine if further evaluation was required or if no action was required. Target values from HHERA used only when comparator values were not available. No clean up levels have been negotiated for Hamilton. Army plans to finalize the HHERA to fully integrate the update the report that was provided in February. DTSC and regulator concerns regarding the HHERA will be addressed in the revisions to the risk assessment and not the FFS. Please see previous comments regarding the inclusion of additional sites in the FFS. The Army understands the RART generally agrees that the HHERA is a very conservative document that can be used to identify NFA sites and can identify sites that require further evaluation in the FFS.
10	Section 1.1, *Purpose and Scope,* describes the scope of the FFS in terms of the remedial actions that could be implemented based	The FFS has been revised to indicate that short-term and long-term impacts to both human and ecological receptors

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	on the anticipated wetlands end-use of the property, rather than an evaluation of potential impacts over the life of the project. Section 1.1 should be revised to include evaluation of short-term and long-term impacts to ecological receptors, on-site personnel, and the public from the present through completion of the wetlands project. Additionally, the long-term risk to ecological receptors, onsite personnel and the public also should be identified, discussed, and evaluated for each alternative.	were considered. The FFS has been revised to clearly state that the evaluation considered workers, public, and receptors through construction, development, and maturation of the wetland. Note: The wetland receptors will not be present until the mature wetland develops.
11	FFS Section 1.4.1, *Existing Hydrogeological Setting*, indicates organic contaminants are not present in groundwater throughout the sites and, based on the lack of suitability of the groundwater for drinking water purposes, concludes that groundwater is not adversely affected at Hamilton. In contrast, HWRP Volume II, Chapter 5 (page 5-9) indicates there is groundwater contaminated with petroleum hydrocarbons and solvents, and that groundwater discharges to the PDD. This section referred the reader to Chapter 10, *Hazardous Substances, Wastes, and Site Remediation*, for more detail. Chapter 10 contains no references to groundwater, petroleum hydrocarbons, or solvents. It is apparent the FFS and HWRP will need to be revised to adequately address the groundwater contamination. This analysis would include: 1. Groundwater contour maps with posted analytical data and geologic cross-sections to support conclusions about the quality, occurrence, and movement of groundwater; 2. An understanding of sources and sinks (e.g., the PDD and the subsurface groundwater control system mentioned in HWRP Volume 1, page 7, paragraph 3); 3. Utility maps and other original sources of information; 4. A fate and transport analysis; and	Comments regarding the HWRP are outside of the FFS scope. The Army has decided not to comment on revisions to details regarding the wetland restoration project. It should be noted the HWRP was developed prior to the completion of several key studies including the BRAC Interim Removal Report and the Remedial Design Investigation. As a result, the HWRP did not have the benefit of the information contained in these reports which provide more current and comprehensive information regarding the site. During the FFS, a review was completed for data collected from groundwater wells located in the vicinity of the Inboard Area sites where potential scour within channels may occur (based on mathematical modeling) during the development and maturation of the wetland (see Appendix D, Section 5.0). The review compared groundwater quality to selected surface water quality objectives in areas where groundwater might come into contact with surface water during the development and maturation of the wetland. The results of this review concluded that groundwater does not pose a threat to surface water or aquatic receptors.

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	5. The FFS notes the RWQCB's Basin Plan indicates the existing and potential beneficial uses of groundwater include rare and endangered species preservation, and freshwater wildlife habitats. Conversion of Hamilton into a wetland would likely result in the site also providing saltwater wildlife habitat. The FFS and HWRP should be amended to discuss the water quality criteria associated with these types of habitat, and quantitative comparison to the available analytical data.	
12	Section 1.5, *Previous Investigations*, and Section 1.6, *Nature and Extent of Contamination*, provide a list of references for analytical data and a brief discussion of the nature and extent of contamination, respectively. Select analytical data is posted on Figures B-1 through B-17 in FFS Appendix B. In response to our comments on the draft FFS, the Army posted all the soil analytical data on a set of maps of the base. As previously discussed, these maps need to be made part of the administrative record, and incorporated into the FFS.	Since the information plotted on the maps was used in preparation of the risk assessment, the maps will be provided in the revised risk assessment.
13	FFS Section 1.7.9, *Perimeter Drainage Ditch - Unlined Portion*, should be revised to discuss the changes made to the PDD as the result of construction of the cap on Landfill 26, and Figure B-8 should be revised to show the original alignment of the ditch. Historic maps show the underground piping to be limited to a single straight section perpendicular to the runway. The ditch originated at POL Hill, near Building 736, and proceeded north by northwest between Landfill 26 and Building 750. Figure B-8 should also be revised to include the results of analyses of the sample collected immediately upstream of the original culvert.	See previous comment and response on the PDD, Specific Comment #2. Data provided on the figures only includes concentrations of COCs that exceed their comparator values.
14	FFS Section 2.1, Chemicals of Concern, indicates the RWQCB's Draft Staff Report, Beneficial Reuse of Dredged Materials: Sediment Screening and Testing Guidelines, May 2000, was	The Army will include the RWQCB's Draft Staff Report, Beneficial Reuse of Dredged Materials: Sediment Screening and Testing Guidelines, May 2000 as a TBC (see RWQCB

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	relied on, in part, for identifying comparator values (i.e., remediation goals). However, the guidance, which has been incorporated into waste discharge requirements for projects involving the beneficial reuse of dredge material for wetlands creation, is not referenced in FFS Section 2.2, Applicable or Relevant and Appropriate Requirements (ARARs), or otherwise utilized in the identification or comparison of alternatives. Stabilization of contaminated sediments in-situ with three feet of stable fill materials, which is consistent with the methodology outlined in the RWQCB guidance, is currently under consideration.	comment 7g). Note, the comparator values were relied upon in part to establish remedial action objectives not remedial goals.
15	FFS Section 2.2, *Applicable or Relevant and Appropriate Requirements*, contains a brief summary of the applicable or relevant and appropriate requirements (ARARs) for the project, and a table identifying the sections of laws and regulations believed by the Army to be ARARs (Table 2-8). A number of references are made to statutes contained in Title 22, Division 4.5, California Health and Safety Code. Table 2-8 indicates the provisions of Title 22 are potentially relevant and appropriate to the proposed actions. Table 2-8 should be revised to indicate these statutes would be applicable to the indicated activity. The FFS should also be revised to indicate how the proposed actions would be consistent with the ARARs.	The Army believes that Title 22, Division 4.5 of the California Health and Safety Code is relevant and appropriate. During the 1998 and 1999 removal actions, the most contaminated soil remaining at HAAF was removed and disposed of at a Class II disposal facility. Therefore, it is not anticipated that waste generated during excavations would result in the generation of hazardous waste. Section 4.3 addresses compliance with ARARs. The final wetland design will provide more detail regarding how the ARARs will be achieved.
16	FFS Section 4.4, *Comparative Analysis*, provides a summary of the remediation alternatives analyses conducted in FFS Sections 4.1 through 4.3. A total of four alternatives were evaluated in the FFS: Alternative 1 - No Further Action; Alternative 2 - Institutional Controls; Alternative 3 - Excavation and Offbase Disposal; and Alternative 4 - Excavation and Onbase Disposal. Each of these alternatives is discussed below.	**Alternative 1.** The FFS does not establish clean-up goals. The remedial action objectives provided in the FFS are based on comparator values which are not intended as clean-up goals. The Army acknowledges that the comparator value for DDTs proposed by the RART was rescinded. The Army will default to the process used to develop all comparators and will base the new comparator value for DDT on the RWQCB criteria for dredge material (RWQCB's Draft Staff Report, Beneficial Reuse of Dredged Materials: Sediment Screening and Testing

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	A. Alternative 1 - No Further Action: The site screening process was conducted based on preliminary calculations of the cleanup goals for DDT and its breakdown products. Due to a conversion factor error, these values are expected to be revised to be approximately an order of magnitude more stringent than presented in the FFS (see Attachment I, a March 8, 2001 e-mail message to Mr. Ed Keller, for additional information). Additional cleanup levels may change as they proceed through the review process. It is recommended that decisions regarding which sites are no further action (NFA) sites be deferred until such time as that review process is completed. B. Alternative 2 - Institutional Controls (ICs): ICs are prohibitions on specific activities that might alter the remedy, or result in risks that would otherwise not be present. An example of an IC that should be included in the FFS is a prohibition on soil excavation or erosion in areas of contamination in excess of cleanup goals. Additional ICs should be identified in the FFS. The FFS identifies certain active remediation methods as part of ICs. Active remediation methods (e.g., covering with three feet of stable soils to achieve in-situ stabilization) are distinct from ICs. C. Alternative 3 - Excavation and Off-base Disposal: This alternative includes pre-design borings to determine the extent of excavation activities and the disposition of the soils. DTSC agrees this is a viable alternative, but it should be noted contamination beyond that identified in the FFS could significantly increase the cost of this alternative. D. Alternative 4 - Excavation and Onbase Disposal: As with Alternative 3, there is uncertainty regarding the area and depth requiring excavation. However, the uncertainty in	Guidelines, May 2000). This new comparator value for DDTs will be used in conjunction with comparator values for other analytes to identify no further action sites. The Army is not aware of any other reviews taking place and will proceed with this task. **Alternative 2.** The FFS text has been revised to clearly state that Alternative 2 establishes performance criteria that require the final wetland design to specify that erosion and excavation will be prohibited in areas where COCs will remain in place and be covered. The alternative also requires that the final design develop a specific monitoring plan to monitor the effectiveness of the remedial action throughout the development and physical maturation of the wetland. The text has also been revised to clearly state that Alternative 2 is the performance criteria for the wetland design. Actions that are taken to meet the performance criteria, such as actual placement of cover or monitoring of cover are not a part of the alternative. These actions would take place as part of the wetland restoration project. This alternative eliminates the need to develop goals by eliminating exposure pathways for receptors or by removing soil with concentrations above comparator values. No clean-up goals have been negotiated for Hamilton. **Alternative 3.** The RART agreed in the July 5, 2001 meeting that confirmation sampling could be conducted prior to or following excavation. Some uncertainty regarding the specific volume of soil that will be excavated is expected. The cost evaluation considers the potential for costs to vary by 30% on the low side and 50% on the high side. The cost

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	costs can be more easily managed for Alternative 4. The substantive requirements for on-site consolidation of soils should be revised to indicate alternative construction standards may be used for on-site consolidation based on contaminant concentrations and site-specific conditions (e.g., placing of wastes above groundwater and covering with three feet of stable soils). It should also be noted soils with concentrations above hazardous waste levels would need to be disposed off-site at an appropriate facility. During the June 5 meeting, the Army proposed placement of the soils in Nina's Lake, which is located within the area anticipated to be subject to tidal action. DTSC is concerned this approach may result in failure of the remedy due to the release of contaminated soils into the wetlands. It is recommended soils instead be placed in the more stable upland portions of the site, in areas not subject to tidal action. E. Monitoring and Contingency Measures: For all actions involving leaving wastes on-site, the FFS should identify the monitoring activities necessary to determine whether the chosen alternative is effective (see pages 5 and 6 above for examples). The FFS should also identify contingency measures that can be implemented in the event the chosen alternative is found to be ineffective (e.g., excavation and off-site disposal; reconstruction of cover). The feasibility of implementing contingency measures is of particular concern. For example, placement of soils in Nina's Lake would make implementation of contingency measures infeasible.	estimates were based on conservative volumes that were developed with DTSC input. **Alternative 4.** See response for Alternative 3. The Army has recommended that soil removal at sites identified in the FFS should be disposed of offsite in accordance with Alternative 3. During the June 5, 2001 meeting, the Army proposed that soils impacted by site-wide pesticides and PNAs from the runway be used onsite in areas that could meet the requirement for three feet of stable cover. **Monitoring.** The Army is using CERCLA to identify the best remedial alternatives. Since the process looks at the effectiveness of the remedy, the Army will only propose actions that will be effective in protecting human health and the environment. Therefore, no contingency plans will be included in the FFS. Also, the FFS includes examples of the types of monitoring that should be considered. The monitoring plan will be prepared by the USACE, San Francisco District and SCC in consultation with the Army. Details of the plan will be dependent upon the final wetland design. Through a formal process, the regulatory agencies would ensure that the final wetland design and the grading plans for the final wetland design meet the specified performance criteria and are protective of the future wetland receptors.
17	FFS Section B.1.0, *Area and Volume Calculations*, presents a number of assumptions regarding the extent of contamination and estimates of the volume of soils that would need to be excavated in order to achieve the cleanup objectives. The FFS	The FFS has been revised to state that where excavation is planned, confirmation samples will ensure that RAOs will be met. The RAOs can be met either by excavation of COCs or

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	concludes that "...if excavations were conducted, all potentially-contaminated soil would be removed from the site." In virtually all cases, there is insufficient analytical data to conclude with any certainty the volume of soils that would need to be removed to meet this standard. Based on our discussions, it is recommended the conclusions in the FFS be clarified to indicate that, if a site is excavated, all contaminated soil will be removed down to an elevation where there could be three feet of stable cover material or all contamination will be removed. Confirmatory sampling should also be conducted. The FFS should also be revised to discuss the degree of uncertainty associated with the volume estimates.	placement of three feet of stable cover.
18	Section 5.7, *Conclusions*, *Perimeter Drainage Ditch Spoils Piles, Spoils Pile F*, recommends the removal of the top 6 inches of soil in the approximate location of Spoils Pile F. However, there is significant uncertainty about the current location of the soils from Spoils Pile F. Removal of contaminated soils is recommended, with site characterization prior to the removal.	This section has been revised to indicate that excavation will be conducted in accordance with Alternative 3. That is, pre or post excavation borings will be conducted to guide the action. RAOs can be met at this site through excavation, or excavation followed by placement of three feet of stable cover. The previous reference to removing six inches of soil was based on sampling results and was used for cost estimating purposes.